PHASE II ENVIRONMENTAL ASSESSMENT OF THE DOUGLAS AIRCRAFT COMPANY C-6 FACILITY, PARKING LOT AND TOOL STORAGE YARD LOS ANGELES, CA

Prepared for:

MCDONNELL DOUGLAS REALTY COMPANY

Prepared by:

CAMP DRESSER & McKEE INC.
Irvine, California

August 21, 1991

CDM
environmental engineers, scientists,
planners, & management consultants

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August 21, 1991

Mr. Gary Powley
MCDONNELL DOUGLAS REALTY CO.
18881 Von Karman, Suite 1200
Irvine, California 92715

Subject: Submittal of Phase II Environmental Assessment Report of the Douglas Aircraft Company C-6 Facility, Parking Lot and Tool Storage Yard

Dear Mr. Powley:

Camp Dresser & McKee Inc. (CDM) is pleased to submit the enclosed Phase II Environmental Assessment Report for the subject property. Six copies have been provided for your use.

The report presents the findings and conclusions of the Phase II subsurface soil investigation detailed in the project scope of work.

Please call either me or Katherin Dickinson if you have any questions. It has been a pleasure to serve McDonnell Douglas Realty.

Very truly yours,

CAMP DRESSER & MCKEE INC.

Suzanne M. Rowe, R.G.
Project Manager

Katherine Dickinson
Project Hydrogeologist

Enclosures

2299-115-RT-AUDT

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1.0 INTRODUCTION

Camp Dresser & McKee Inc. (CDM) was contracted by McDonnell Douglas Realty Company (MDR) on April 5, 1991 to conduct a Phase I investigation at the Douglas Aircraft Company C-6 Facility parking lot and tool storage yard (the project site). A Phase I Environmental Assessment of the subject property was completed by CDM and a report was submitted to MDR on June 13, 1991. Based on the results of the Phase I assessment, and due to the fact that the presence of contaminated ground water from off-site sources is not of primary concern, past or present activities at the project site do not warrant an extensive Phase II investigation. However, a preliminary subsurface soil investigation was requested by MDR to provide an additional level of confidence regarding subsurface soil conditions at the subject property. On July 13, 1991, MDR provided authorization to amend the Phase I contract to commence with the Phase II subsurface soil investigation.

The purpose of this report is to summarize the findings and conclusions of the Phase II field investigation. The Phase II investigation consisted of six soil borings to provide data on the potential for subsurface soil contamination resulting from activities on- or off-site. Three soil borings were located in the parking lot, where ground water contamination from trichloroethylene (TCE) has been detected in two monitor wells along the western and northwestern boundary of the lot. The remaining three borings were located in the tool storage area including areas bordering the Montrose Chemicals site and the Department of Water and Power (DWP) power substation.

2.0 PHASE II FIELD INVESTIGATION PROCEDURES

The Phase II investigation consisted of drilling and sampling six 30-foot subsurface soil borings to determine the presence or absence of contamination at each location. The following sections describe the drilling and sampling procedures along with a discussion on decontamination and quality control measures.

2.1 Soil Boring Locations

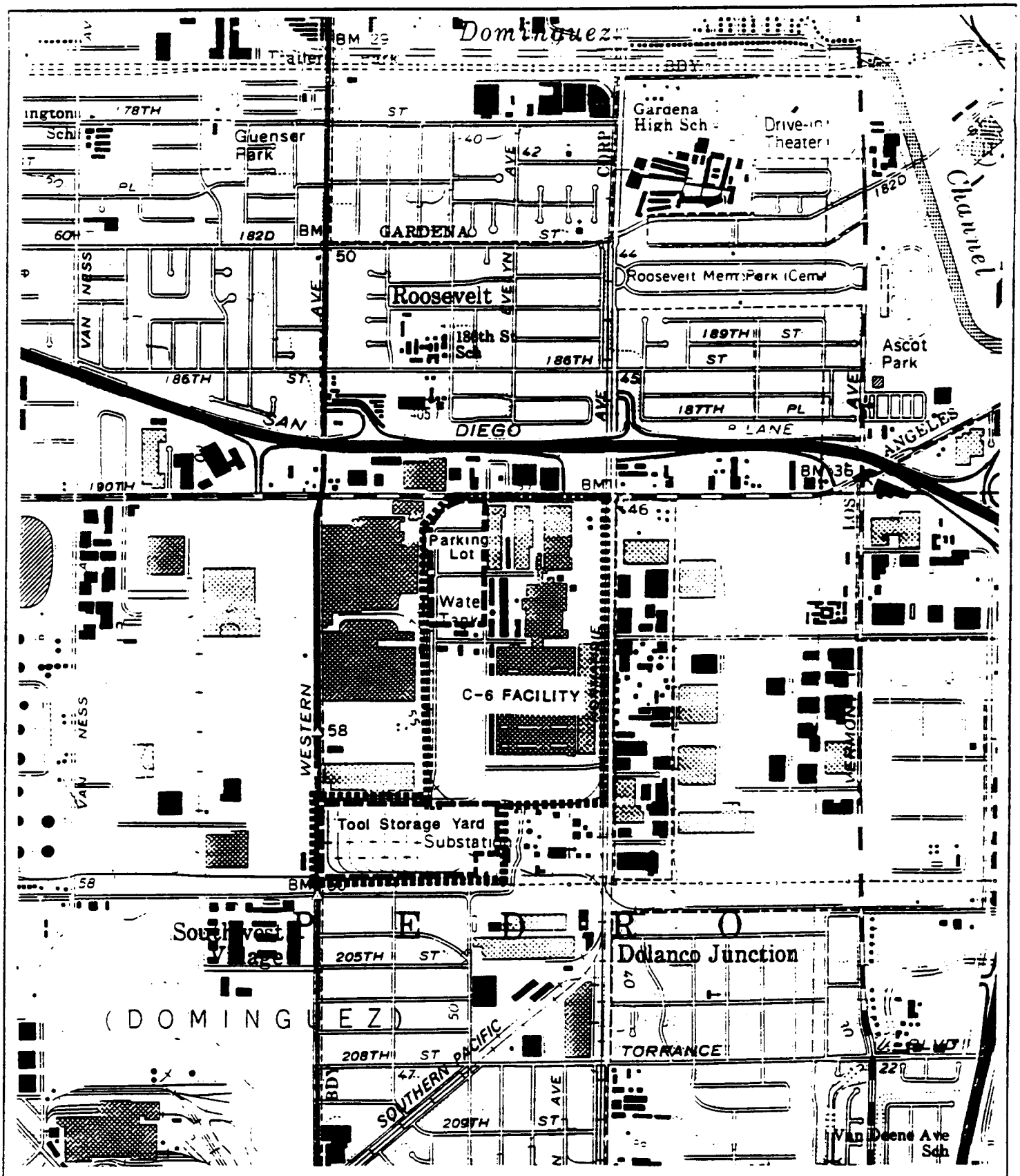
The Douglas Aircraft Company C-6 facility location is shown on Figure 1. Soil boring locations are shown on Figure 2. The locations were selected to accomplish the objectives of the Phase II investigation. Borings B-1 and B-3 were located along the perimeter of the parking lot adjacent to wells WCC-10S and DAC-P1, respectively, both of which have shown elevated levels of TCE in the ground water believed to be attributable to off-site activities. Boring B-2 was located in the center of this parking lot. Borings B-4 and B-5 were located in the tool storage yard near the DWP power substation, with B-4 along the perimeter of the Montrose Chemical property. Boring B-6 was located in the approximate center of the tool storage yard.

Underground Service Alert was notified by CDM prior to drilling at the proposed locations. In addition, MDR supplied plans of all underground utilities on each parcel and confirmed all soil boring locations prior to drilling. No underground obstructions were encountered during drilling.

2.2 Drilling and Soil Sampling

Beylik Drilling Inc. of La Habra was contracted by CDM to perform borehole drilling. The field work commenced on July 18, 1991 and was completed on July 19, 1991.

Soil borings were drilled using a hollow stem auger rig with eight-inch outer diameter auger flights. Soil samples were obtained every five feet using a one and one-half-inch diameter split-spoon sampler (California Ring Sampler) fitted with six 2-1/2-inch long interior stainless steel sampling sleeves. The number of blows required to drive the sampler per six-inch increment was recorded in the field log book and is included on boring logs in Appendix 1. The blow count gives an indication of the relative density of the material being sampled. The total depth of each borehole was 31.5 feet below the ground surface (bgs).



PROJECT SITE BOUNDARY

C-6 FACILITY BOUNDARY

1/2 Mile

N

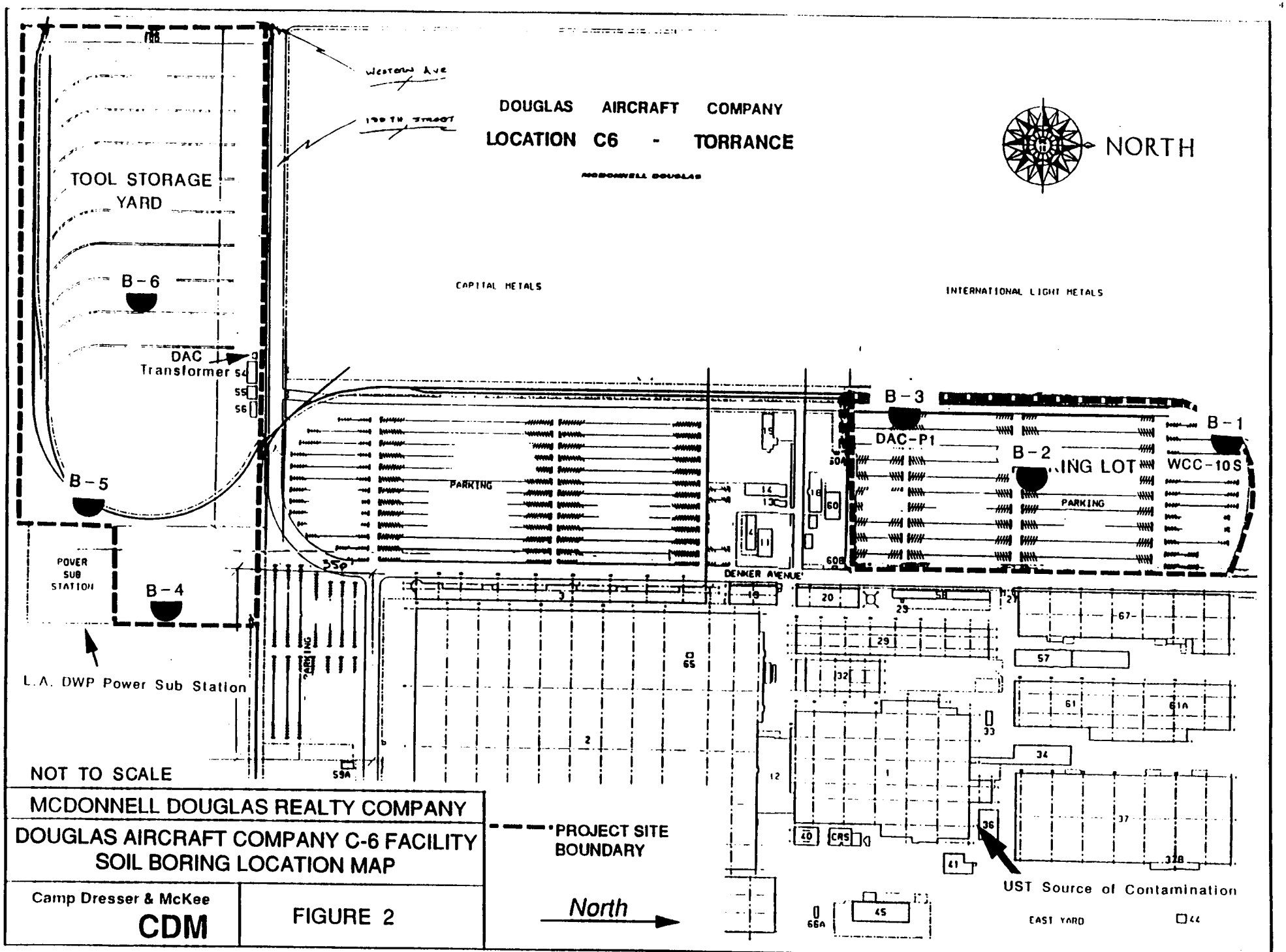
MAP SOURCE: U.S.G.S. TORRANCE QUAD

MCDONNELL DOUGLAS REALTY COMPANY

TORRANCE PROJECT SITE

Camp Dresser & McKee
CDM

FIGURE 1



MCDONNELL DOUGLAS REALTY COMPANY

DOUGLAS AIRCRAFT COMPANY C-6 FACILITY
SOIL BORING LOCATION MAP

Camp Dresser & McKee
CDM

FIGURE 2

BOE-C6-0071963

Immediately upon opening the sampler, the soil was checked with a photoionization detector (PID) for the presence of organic vapors. Organic vapors were not detected in any of the soil samples subjected to field screening with the PID (all measurements were zero parts per million or equal to background measurements). In addition, there were no visible or olfactory indications of contamination (i.e., staining or hydrocarbon odor). The two lowermost sleeves from each five-foot sample interval were prepared by covering each end with teflon tape and securing plastic caps over the ends. The lowermost sleeve was labeled with each five-foot increment and was composited into one sample for the entire boring. The next lowermost sleeve was labeled with the five-foot increment plus 0.2 feet and was saved by the lab for later analysis in the event that contamination was identified. The two sleeves from each five-foot interval were then labeled with waterproof ink, placed inside a ziplock bag and placed into sealable ice chests and cooled with blue ice immediately after sampling.

Sample containers were labeled according to the following coding:

McDonnell Douglas Realty - Torrance Site	Soil Boring No.	Sample Depth
MDT	B-1	5

Sample container labels also included date and time of sampling. The samples were delivered by CDM personnel to CKY Laboratories of Torrance at the end of each day of sampling. Chain of custody forms accompanied the samples at all times.

The soil material was logged using the Unified Soil Classification System (USCS) and recorded into a field log book. Borehole logs for each of the soil borings are included in Appendix 1. All soil cuttings were collected in 55-gallon drums which are currently stored on site and will be disposed of by MDR.

2.3 Sample Analysis

The analytical protocols established for the soil samples collected during this investigation were based on available information concerning past and present activities at the project site and surrounding properties. Due to the known presence of ground water contamination of TCE, chloroform, and a variety of other volatile organic compounds, all composited soil samples were analyzed according to EPA Methods 8010/8020 for the presence of halogenated and aromatic volatile organic compounds. In addition, composited samples from each boring were analyzed for 13 Priority Pollutant Metals according to EPA Methods due to the fact that metal processing plants are adjacent to both parcels. Two soil samples collected adjacent to the Montrose Chemicals site and the DWP power substation were also be analyzed for organochlorine pesticides and PCBs according to EPA Method 8080 due to the documented DDT contamination at the Montrose site and potential for PCB contamination adjacent to the DWP substation. All soil samples were screened in the field with a photoionization detector for the presence of volatile organic compounds.

2.4 Equipment Decontamination

All downhole drilling and sample driving equipment was steam-cleaned prior to first use and between each boring. Non-disposable sampling equipment such as split-spoon samplers, stainless steel sleeves, plastic end caps, bailers and spatulas, were decontaminated according to the following procedures:

1. Wash with laboratory grade detergent (Alconox)
2. Rinse with tap water
3. Rinse twice with deionized/distilled water
4. Rinse with reagent grade methanol
5. Rinse with deionized water

All decontaminated sampling equipment was stored on clean polyethylene sheeting or in new plastic trash bags. Decontaminated equipment was not allowed to touch the ground. These decontamination procedures were utilized to help prevent cross-contamination and ensure the integrity of each sample.

3.0 RESULTS OF PHASE II INVESTIGATION

3.1 Soil Sample Analysis

Each composite sample obtained from the facility was analyzed for volatile organic compounds by EPA Methods 8010/8020 and for priority pollutant metals by EPA Methods 3050/6010/7000. Samples B-4 and B-5 were also analyzed by EPA Method 8080, for PCBs and organochlorine pesticides. Volatile organic results for all borings are summarized in Table 1, whereas metals, pesticides and PCB results are summarized in Table 2. The laboratory data sheets and chain of custody forms as provided by CKY Laboratory of Torrance, are included in Appendix 2.

No purgeable aromatic compounds, EPA Method 8020, were detected above the detection limit of 5.0 μg/kg in any of the composite samples. Chlorobenzene was the only purgeable halocarbon, EPA Method 8010, detected in any of the samples. It was detected at 8.40 μg/kg in sample B-3, just above the detection limit of 5.0 μg/kg. Available information on ground water contamination in the vicinity of B-3 has not indicated that chlorobenzene is a contaminant found in the ground water.

No pesticides or PCBs by EPA Method 8080 were detected in any of the composite soil samples at detection limits ranging from 0.01 mg/kg to 0.10 mg/kg. The metals antimony, beryllium, lead, mercury, selenium, silver and thallium were not detected in any of the soil samples. Cadmium, chromium, copper, nickel and zinc were all detected in composite samples, and arsenic was detected in all composite samples except for B-5. Detection limits for metals ranged from 0.05 mg/kg to 10.00 mg/kg.

TABLE 1
McDONNEL DOULGLAS REALTY
DOUGLAS AIRCRAFT COMPANY
C-6 FACILITY, PARKING LOT AND TOOL STORAGE AREA
8010/8020 ORGANIC ANALYTICAL RESULTS
SOIL SAMPLES

Compound	B1	B-2	B-3	B-4	B-5	B-6
8010 Parameters						
Benzylchloride	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Bromodichloromethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Bromoform	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Bromomethane	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00
Carbon Tetrachloride	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Chlorobenzene	< 5.00	< 5.00	8.40	< 5.00	< 5.00	< 5.00
Chloroethane	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00
2-Chloroethylvinylether	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Chloroform	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Chloromethane	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00
Chlorotoluene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Dibromochloromethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,2-Dichlorobenzene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,3-Dichlorobenzene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,4-Dichlorobenzene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Dichlorodifluoromethane	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00
1,1-Dichloroethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,2-Dichloroethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,1-Dichloroethene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
trans-1,2-Dichloroethene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,2-Dichloropropane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
cis-1,3-Dichloropropene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
trans-1,3-Dichloropropene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Ethylene Dibromide	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Methylene Chloride	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,1,2,2-Tetrachloroethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Tetrachloroethene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,1,1-Trichloroethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
1,1,2-Trichloroethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Trichloroethene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Trichlorofluoromethane	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Vinyl Chloride	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00	< 20.00
8020 Parmeters						
Benzene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Ethylbenzene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Toluene	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Xylenes, Total	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00

Note: All results in micrograms per kilogram (ug/kg)
Laboratory analyses performed by CKY.
< Denotes non-detection at indicated detection limit

TABLE 2
McDONNEL DOULGLAS REALTY
DOUGLAS AIRCRAFT COMPANY
C-6 FACILITY, PARKING LOT AND TOOL STORAGE AREA
METALS, PESTICIDES & PCBS ANALYTICAL RESULTS
SOIL SAMPLES

Compound	B-1	B-2	B-3	B-4	B-5	B-6
3050/6010/7000 Metals						
Antimony	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Arsenic	12.00	11.00	13.00	15.00	< 5.00	7.80
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	2.90	2.20	2.40	2.40	1.60	1.90
Chromium, Total	23.00	18.00	19.00	20.00	13.00	14.00
Copper	23.00	18.00	19.00	24.00	11.00	11.00
Lead	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Mercury	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	11.00	12.00	10.00	13.00	9.40	8.50
Selenium	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Silver	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Thallium	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00
Zinc	68.00	59.00	62.00	65.00	40.00	44.00
8080 Pesticides						
Aldrin	NA	NA	NA	< 0.02	< 0.02	NA
Alpha-BHC	NA	NA	NA	< 0.01	< 0.01	NA
Beta-BHC	NA	NA	NA	< 0.02	< 0.02	NA
Delta-BHC	NA	NA	NA	< 0.02	< 0.02	NA
Gamma-BHC (Lindane)	NA	NA	NA	< 0.01	< 0.01	NA
Chlodane	NA	NA	NA	< 0.05	< 0.05	NA
4,4'-DDD	NA	NA	NA	< 0.02	< 0.02	NA
4,4'-DDE	NA	NA	NA	< 0.02	< 0.02	NA
4,4'-DDT	NA	NA	NA	< 0.02	< 0.02	NA
Dieldrin	NA	NA	NA	< 0.02	< 0.02	NA
Endosulfan I	NA	NA	NA	< 0.02	< 0.02	NA
Endosulfan II	NA	NA	NA	< 0.05	< 0.05	NA
Endosulfan Sulfate	NA	NA	NA	< 0.05	< 0.05	NA
Endrin	NA	NA	NA	< 0.02	< 0.02	NA
Endrin Aldehyde	NA	NA	NA	< 0.05	< 0.05	NA
Heptachlor	NA	NA	NA	< 0.02	< 0.02	NA
Heptachlor Epoxide	NA	NA	NA	< 0.02	< 0.02	NA
Methxychlor	NA	NA	NA	< 0.10	< 0.10	NA
Toxaphene	NA	NA	NA	< 0.10	< 0.10	NA
8080 PCBs						
Arocior-1016	NA	NA	NA	< 0.10	< 0.10	NA
Arocior-1221	NA	NA	NA	< 0.10	< 0.10	NA
Arocior-1232	NA	NA	NA	< 0.10	< 0.10	NA
Arocior-1242	NA	NA	NA	< 0.10	< 0.10	NA
Arocior-1248	NA	NA	NA	< 0.10	< 0.10	NA
Arocior-1254	NA	NA	NA	< 0.10	< 0.10	NA
Arocior-1260	NA	NA	NA	< 0.10	< 0.10	NA

Note: All metal, pesticide and PCB results in milligrams per kilogram (mg/kg)
< Denotes non-detection at indicated detection limit
= Denotes compound concentration is equal to the detection limits
NA Denotes parameter not analyzed

The inorganic analysis results were evaluated relative to standards set by the California Administrative Code, Title 22 (Modified August, 1986). These standards are shown on Table 3. Wastes with concentrations exceeding the Total Threshold Limit Concentration (TTLC) may be considered to be hazardous by the California Department of Health. Materials with total concentrations greater than ten times the soluble threshold limit concentration (STLC) values are considered hazardous and are required to be reanalyzed by wet extraction. Table 4 shows normal ranges of metals in western United States soils. Arsenic concentrations ranged from non-detect in B-5 to 15 mg/kg in B-4. Typical background levels of arsenic soils of the western U.S. range from 2.8 - 10.9 mg/kg. Although soil samples from B-1, B-2, B-3 and B-4 were slightly above the upper limit of this range, the levels of arsenic are not necessarily indicative of contamination at the site. The STLC for arsenic is 5 mg/kg, therefore, 10 times this value or 50 mg/kg is well above the arsenic levels detected at the site. The arsenic levels at the site, therefore, would not be considered hazardous from a regulatory standpoint.

Cadmium was detected in all six borings at concentration ranging from 1.6 mg/kg in B-5 to 2.9 mg/kg in B-1. These levels are above the STLC of 1 mg/kg but less than ten times the STLC (10 mg/kg). These levels are also above the typical range of 0.1 mg/kg to 0.5 mg/kg for western soils. Although the native sediments in this area are not known to contain high levels of cadmium, it is possible these soils were imported fill. Cadmium is a metal used in several industrial activities, including pigment in paint.

Chromium was detected at levels from 13 to 23 mg/kg. These values are well below the STLC of 560 mg/kg, and fall within or below the normal range of western U.S. soils of 19-90 mg/kg. Copper was detected at levels from 11 to 24 mg/kg. These values fall within the normal range of copper in western U.S. soils of 10 to 43 mg/kg. All of the copper results are below the STLC of 25 mg/kg.

Nickel was detected in borings at values from 8.5 to 13 mg/kg. These are below the STLC for nickel (20 mg/kg) and within normal values for soils in western U.S. (7-32 mg/kg). Zinc

Table 3 California Standards for Inorganic Compounds[1]

Substance	Soluble Threshold Limit Concentration[2] (mg\kg)	Total Threshold Limit Concentration (mg\kg)
Antimony	15	500
Arsenic	5	500
Barium	100	10,000
Beryllium	0.75	75
Cadmium	1	100
Chromium (III)	560	2500
Cobalt	80	8,000
Copper	25	2,500
Lead	5	1,000
Mercury	0.2	20
Molybdenum	350	3,500
Nickel	20	2,000
Selenium	1	100
Silver	5	500
Vanadium	24	2,400
Zinc	250	5,000

[1] California Administative Code, Title 22, Modified August, 1986

[2] Analysis by wet exraction required if total concentration is less than ten times the Soluble Threshold Limit Concentation

TABLE 4

NORMAL RANGES OF ELEMENTAL CONCENTRATIONS
IN SOILS OF THE WESTERN UNITED STATES*

Element	Mean** (mg/kg)	Normal Range Mean ± 1 s.d.** (mg/kg)
Aluminum	38,000	29,000 - 11,600
Antimony	0.47	0.22 - 1.01
Arsenic	5.5	2.8 - 10.9
Barium	580	337 - 998
Beryllium	0.68	0.30 - 1.56
Cadmium	0.2	0.1 - 0.5
Chromium	41	19 - 90
Cobalt	7.1	3.6 - 14.0
Copper	21	10 - 43
Iron	21,000	10,800 - 41,000
Lead	17	9 - 31
Manganese	380	192-752
Mercury	0.05	0.02 - 0.11
Nickel	15	7 - 32
Selenium	0.23	0.09 - 0.56
Silver	0.2	0.1 - 0.5
Thallium	0.2	0.1 - 0.4
Tin	0.9	0.4 - 1.9
Vanadium	70	36 - 136
Zinc	55	31 - 98
Molybdenum	0.85	0.39 - 1.85
Thorium	9.1	6.1 - 13.6
Uranium	2.5	1.7 - 3.6
Yttrium	22	13 - 37

* Data From: Shacklette, H.T., and Boerngen, J.G.; 1984: Element Concentrations in Soils and other Surficial Materials of the Conterminous United States. U.S. Surv. Professional Paper 127, 105 pp.

** Means and standard deviations are geometric to account for log-normal distributions.

concentrations in soil samples ranged from 40 to 68 mg/kg, well below the STLC of 250 mg/kg. Zinc values for western U.S. soils range from 31-98 mg/kg.

3.2 Subsurface Soil Conditions

Soils encountered during drilling included silty sands and clayey, silty sands. Minor gravel and shell fragments were present in some borings. Soil lithologies are identified on each of the soil borings included in Appendix 1.

Ground water was not encountered in any of the borings, nor were any perched ground water zones. According to the Phase I report (CDM), shallow ground water is approximately 70-72 feet below ground surface, with ground water flow direction from the northwest to the southeast.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this limited Phase II investigation, we do not believe that further soil investigations are warranted at the site. Although no federal, state, or local clean-up standard exists for chlorobenzene, the concentration of 8.4 μg/kg in boring B-3 is not likely to be cause for concern by applicable regulatory authorities. Similarly, all of the concentrations of inorganic constituents (notably arsenic, cadmium, chromium, nickel, and zinc) are not of a magnitude which would require further investigation or remediation.

The conclusions stated above are, necessarily, based on data from six borings drilled across an approximate 46-acre site. As such, we cannot conclusively state that subsurface soil contamination does not exist at the site. However, given that the locations of the soil borings were selected based on where existing information indicated higher potential for contamination to occur, the results of this investigation do demonstrate that the probability of extensive subsurface soil contamination existing on the site is low.

5.0 REFERENCES

Camp Dresser & McKee Inc., Phase I Environmental Assessment of the Douglas Aircraft C-6 Facility, Parking Lot and Tool Storage Yard, Los Angeles, California, June 13, 1991.

Douglas Aircraft Company, various maps and plans of the project site.

APPENDIX 1

SOIL BORING LOGS

KEY FOR BOREHOLE LOGS

Abbreviations Used:

brn - brown	v - very	B - backround
blk - black	w/ - with	S - sample
olv - olive	mod - moderate	NE - none encountered
yel - yellow	f - fine	NA - not applicable
lt - light	c - coarse	PID - photo ionization detector
dk - dark	g - grained	FID - flame ionization detector
med - medium	tr - trace	ppm - parts per million

Symbols Used:


DEPTH OF SOIL SAMPLED


BENTONITE GROUT


CEMENT


DEPTH OF SAMPLE SENT TO LAB

Lithological Patterns Used:


SAND


CLAYEY SANDY SILT


SILTY OR CLAYEY SAND


CLAYEY SILT


SANDY SILT


SILTY CLAY


SILT


CLAY


GRAVELLY SAND


SILTY OR CLAYEY, GRAVELLY SAND

CLIENT MDC REALTY COMPANY | BOREHOLE NO. B-1 | **CAMP DRESSER & MCKEE INC.**

SITE C-6 FACILTY, TORRANCE | TOTAL DEPTH 31.5 feet | ELEVATION N. A.

JOB NUMBER 2299-115-RT-AUDT | DATE DRILLED 18 JULY 91 | LOGGED BY EMILY WEYAND

DRILLING CONTR. BEYLIK DRILLING | DRILLING METHOD HOLLOW-STEM AUGER

DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG: Lithology	GRAPHIC LOG: Borehole Abandoned	GRAPHIC LOG: Water Level	SAMPLES: Lab	SAMPLES: Lith	PID (ppm) and R/hr	BLOW COUNT (per 6" interval)	RECOV. / ADV. (feet)
5	5-6.5' SILTY SAND - dusky yel brn, 10YR 2/2, f to m g sand, sl damp, no odor, minor fine pebbles, minor clay.	SM		GROUT	NO GROUND WATER ENCOUNTERED	ONE COMPOSITE SAMPLE FOR ENTIRE BORING		0/0	10-10-13	
10	10-11.5' SILTY SAND - mod yel brn, 10YR 5/4, f to m g sand, no odor, no pebbles, minor clay.	SM						0/0	9-13-20	
15	15-16.5' SILTY SAND - as at 10'.	SM						0/0	9-14-22	
20	20-21.5' SILTY SAND - as at 10'.	SM						0/0	8-8-13	
25	25-26.5' CLAYEY, SILTY SAND - mod yel brn 10 YR 5/4, f g sand, moist, no odor.	SM to SC						0/0	11-12-15	
30	30-31.5' SILTY SAND - dk yel orange, 10YR 6/6, f to c g sand, no odor, no clay.	SM						.4/.4	14-24-26	
35										
40										

CLIENT MDC REALTY COMPANY | BOREHOLE NO. B-2 | **CAMP DRESSER & MCKEE INC.**

SITE C-6 FACILTY, TORRANCE | TOTAL DEPTH 31.5 feet | ELEVATION N. A.

JOB NUMBER 2299-115-RT-AUDT | DATE DRILLED 18 JULY 91 | LOGGED BY EMILY WEYAND

DRILLING CONTR. BEYLIK DRILLING | DRILLING METHOD HOLLOW-STEM AUGER

DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG: Lithology	GRAPHIC LOG: Borehole Abandoned	GRAPHIC LOG: Water Level	SAMPLES: Lab	SAMPLES: Lith	PID (ppm) and R/hr	BLOW COUNT (per 6" interval)	RECOV. / ADV. (feet)
5	5-6.5' CLAYEY, SILTY SAND - mod brn, 5YR 3/4, f to m g sand, moist, no odor.	SM to SC		GROUT	NO GROUND WATER ENCOUNTERED	ONE COMPOSITE SAMPLE FOR ENTIRE BORING	X	.9/.9	8-18-23	
10	10-11.5' SILTY SAND - mod yel brn, 10YR 5/4, f to m g sand, no odor, minor clay.	SM					X	.4/.4	10-16-20	
15	15-16.5' SILTY SAND - as at 10'.	SM					X	.4/.4	6-11-15	
20	20-21.5' CLAYEY, SILTY SAND - mod yel brn 10 YR 5/4, f g sand, moist, no odor, minor small pebbles.	SM to SC					X	.4/.4	6-15-29	
25	25-26.5' SILTY SAND - mod yel brn, 10YR 5/4, f to m g sand, no odor, minor clay.	SM					X	0/0	6-9-14	
30	30-31.5' SILTY SAND - dk yel orange, 10YR 6/6, f to c g sand, no odor, no clay, about 5% shell frags.	SM					X	0/0	5-19-30	
35										
40										

CLIENT MDC REALTY COMPANY | BOREHOLE NO. B-3 | **CAMP DRESSER & MCKEE INC.**

SITE C-6 FACILTY, TORRANCE | TOTAL DEPTH 31.5 feet | ELEVATION N. A.

JOB NUMBER 2299-115-RT-AUDT | DATE DRILLED 18 JULY 91 | LOGGED BY EMILY WEYAND

DRILLING CONTR. BEYLIK DRILLING | DRILLING METHOD HOLLOW-STEM AUGER

DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG: Lithology	GRAPHIC LOG: Borehole Abandoned	GRAPHIC LOG: Water Level	SAMPLES: Lab	SAMPLES: Lith	PID (ppm) and R/hr	BLOW COUNT (per 6" interval)	RECOV. / ADV. (feet)
5	5-6.5' SILTY SAND - mod yel brn, 10YR 5/4, f to m g sand, moist, no odor, minor clay, tr fine gravel.	SM		GROUT	NO GROUND WATER ENCOUNTERED	ONE COMPOSITE SAMPLE FOR ENTIRE BORING	X	0/0	5-10-21	
10	10-11.5' SILTY SAND - as at 5'.	SM					X	0/0	6-11-22	
15	15-16.5' SILTY SAND - as at 5'.	SM					X	0/0	4-9-17	
20	20-21.5' SILTY SAND - as at 5', but w/ 5% pebbles.	SM					X	0/0	8-24-30	
25	25-26.5' SILTY SAND - dk yel brn, 10YR 6/6, f to c g sand, no odor.	SM					X	0/0	11-15-22	
30	30-31.5' SILTY SAND -as at 25' but with 10-20% shell frags.	SM					X	0/0	10-21-30	
35										
40										

CLIENT MDC REALTY COMPANY | BOREHOLE NO. B-4 | **CAMP DRESSER & MCKEE INC.**

SITE C-6 FACILTY, TORRANCE | TOTAL DEPTH 31.5 feet | ELEVATION N. A.

JOB NUMBER 2299-115-RT-AUDT | DATE DRILLED 18 JULY 91 | LOGGED BY EMILY WEYAND

DRILLING CONTR. BEYLIK DRILLING | DRILLING METHOD HOLLOW-STEM AUGER

DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG: Lithology	GRAPHIC LOG: Borehole Abandoned	GRAPHIC LOG: Water Level	SAMPLES: Lab	SAMPLES: Lith	PID (ppm) and R/hr	BLOW COUNT (per 6" interval)	RECOV. / ADV. (feet)
5	5-6.5' SILTY SAND - mod yel brn, 10YR 5/4, f to m g sand, moist, no odor, trace clay, tr fine gravel.	SM		GROUT	NO GROUND WATER ENCOUNTERED	ONE COMPOSITE SAMPLE FOR ENTIRE BORING	X	0/0	6-10-19	
10	10-11.5' SILTY SAND - as at 5'.	SM					X	0/0	5-8-15	
15	15-16.5' SILTY SAND - as at 5', w/ up to 5% clay.	SM					X	0/0	4-10-15	
20	20-21.5' SILTY SAND - mod yel brn, 10YR 5/4, f to c g sand, no odor, some dk yel orange staining.	SM					X	0/0	7-18-23	
25	25-26.5' SILTY SAND - mod yel brn, 10YR 5/4, f to c g sand, no odor, no staining.	SM					X	0/0	8-12-20	
30	30-31.5' SILTY SAND - as at 25'.	SM					X	.4/.4	7-20-22	
35										
40										

CLIENT MDC REALTY COMPANY | BOREHOLE NO. B-5 | **CAMP DRESSER & MCKEE INC.**

SITE C-6 FACILTY, TORRANCE | TOTAL DEPTH 31.5 feet | ELEVATION N. A.

JOB NUMBER 2299-115-RT-AUDT | DATE DRILLED 19 JULY 91 | LOGGED BY EMILY WEYAND

DRILLING CONTR. BEYLIK DRILLING | DRILLING METHOD HOLLOW-STEM AUGER

DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG: Lithology	GRAPHIC LOG: Borehole Abandoned	GRAPHIC LOG: Water Level	SAMPLES: Lab	SAMPLES: Lith	PID (ppm) and R/hr	BLOW COUNT (per 6" interval)	RECOV. / ADV. (feet)
5	5-6.5' SILTY SAND - mod yel brn, 10YR 5/4, f to m g sand, moist, no odor, up to 5% clay.	SM		GROUT	NO GROUND WATER ENCOUNTERED	ONE COMPOSITE SAMPLE FOR ENTIRE BORING	X	0/0	13-18-25	
10	10-11.5' CLAYEY, SILTY SAND - dk yel brn, 10YR 4/2 f g sand, sl. moist, no odor, more clay than silt.	SM to SC					X	0/0	7-10-20	
15	15-16.5' SILTY SAND - as at 5', w/ only trace clay.	SM					X	0/0	6-11-17	
20	20-21.5' SILTY SAND - mod yel brn, 10YR 5/4, f to m g sand, no odor, no clay.	SM					X	0/0	8-13-19	
25	25-26.5' SILTY SAND - pale yel brn, 10YR 6/2, w/ dk yel orange Fe staining, 10YR 6/6, c to f g sand, no clay, no odor.	SM					X	0/0	7-11-19	
30	30-31.5' SILTY SAND - as at 25', but moist.	SM					X	.4/.4	7-14-20	
35										
40										

CLIENT MDC REALTY COMPANY

BOREHOLE NO. B-6

CAMP DRESSER & MCKEE INC.

SITE C-6 FACILTY, TORRANCE

TOTAL DEPTH 31.5 feet

ELEVATION N. A.

JOB NUMBER 2299-115-RT-AUDT

DATE DRILLED 18 JULY 91

LOGGED BY EMILY WEYAND

DRILLING CONTR. BEYLIK DRILLING

DRILLING METHOD HOLLOW-STEM AUGER

DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG: Lithology	GRAPHIC LOG: Borehole Abandoned	GRAPHIC LOG: Water Level	SAMPLES: Lab	SAMPLES: Lith	PID (ppm) and R/hr	BLOW COUNT (per 6" interval)	RECOV. / ADV. (feet)
5	5-6.5' CLAYEY, SILTY SAND - mod yel brn, 10YR 5/4, f g sand, moist, no odor, trace gravel.	SM to SC		GROUT	NO GROUND WATER ENCOUNTERED	ONE COMPOSITE SAMPLE FOR ENTIRE BORING	X	0/0	10-27-43	
10	10-11.5' CLAYEY, SILTY SAND -dk yel brn, 10YR 4/2, f g sand, no odor, trace gravel.	SM to SC					X	0/0	6-18-36	
15	15-16.5' CLAYEY, SILTY SAND - as at 10'.	SM to SC					X	0/0	5-14-18	
20	20-21.5' SILTY SAND - dk yel orange, 10YR 6/6, f to c g sand, no odor, minor clay.	SM					X	0/0	8-10-17	
25	25-26.5' SILTY SAND - as at 20'.	SM					X	0/0	6-10-19	
30	30-31.5' CLAYEY, SILTY SAND - dk yel brn, 10YR 4/2, w/ dk yel orange staining, 10YR 6/6, f g sand.	SM to SC					X	0/0	4-6-12	
35										
40										

APPENDIX 2

LABORATORY DATA SHEETS

C K Y incorporated
Analytical Laboratories

Date: 08/01/91
910758

CDM
18881 Von Karman, Suite #650
Irvine, CA 92715

Attn: Ms. Suzanne Rowe

Subject: Laboratory Report
Project: McDonnell Douglas Torrance

Enclosed is the laboratory report for samples received on 07/25/91 and 7/19/91. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported includes:

Method	No. of Analysis
EPA 6010/7000	5 Soil Composite
EPA 8010/8020	5 Soil Composite
EPA 8080	1 Soil Composite

The results are summarized on nine pages.

Please feel free to call if you have any questions concerning these results.

Sincerely,

Kam Pang (cl)

Dr. Kam Pang
Laboratory Director

630 Maple Ave., Torrance, Calif. 90503 • Telephone 213-618-8889 • Fax: 213-618-0818

EPA 3050/6010/7000
PRIOR. POLL METALS BY ICP/AA

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/24/91
SAMPLE ID:	MDT-B1	**DATE ANALYZED:**	07/26/91
CONTROL NO:	910758-Comp. 1	**MATRIX:**	Soil

PARAMETERS	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Antimony	ND	5.0
Arsenic	12	5.0
Beryllium	ND	0.50
Cadmium	2.9	0.50
Chromium - Total	23	0.50
Copper	23	0.50
Lead	ND	1.0
Mercury	ND	0.05
Nickel	11	1.0
Selenium	ND	5.0
Silver	ND	0.50
Thallium	ND	10
Zinc	68	0.50

EPA 3050/6010/7000
PRIOR. POLL METALS BY ICP/AA

CLIENT:	CDM	DATE REC'D:	07/19/91
PROJECT:	McDonnel Douglas	DATE EXTRACTED:	07/24/91
SAMPLE ID:	MDT-B4	DATE ANALYZED:	07/26/91
CONTROL NO:	910758-Comp. 5	MATRIX:	Soil

PARAMETERS	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Antimony	ND	5.0
Arsenic	15	5.0
Beryllium	ND	0.50
Cadmium	2.4	0.50
Chromium - Total	20	0.50
Copper	24	0.50
Lead	ND	1.0
Mercury	ND	0.05
Nickel	13	1.0
Selenium	ND	5.0
Silver	ND	0.50
Thallium	ND	10
Zinc	65	0.50

EPA METHOD 8010/8020

CLIENT: CDM
PROJECT: McDonnell Douglas
MATRIX TYPE: Soil

DATE REC'D: 07/19/91
DATE ANALYZED: 07/21/91

SAMPLE ID:	BLANK	MDT-B1	MDT-B2	MDT-B3	MDT-B6	MDT-B4	
CONTROL NO.: 91CTE8		Comp. 1	Comp. 2	Comp. 3	Comp. 4	Comp. 5	
PARAMETERS (8010				RESULT (ug/kg)			DETEC LIMIT (ug/k
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	20
Chloromethane	ND	ND	ND	ND	ND	ND	20
Vinyl Chloride	ND	ND	ND	ND	ND	ND	20
Bromomethane	ND	ND	ND	ND	ND	ND	20
Chloroethane	ND	ND	ND	ND	ND	ND	20
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	ND	5
Trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	5
2-Chloroethylvinylether	ND	ND	ND	ND	ND	ND	5
Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	5
Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	ND	5
Dibromochloromethane	ND	ND	ND	ND	ND	ND	5
Ethylene Dibromide	ND	ND	ND	ND	ND	ND	5
Chlorobenzene	ND	ND	ND	8.4	ND	ND	5
Bromoform	ND	ND	ND	ND	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	5
Chlorotoluene	ND	ND	ND	ND	ND	ND	5
M-Dichlorobenzene	ND	ND	ND	ND	ND	ND	5
P-Dichlorobenzene	ND	ND	ND	ND	ND	ND	5
Benzylchloride	ND	ND	ND	ND	ND	ND	5
O-Dichlorobenzene	ND	ND	ND	ND	ND	ND	5
PARAMETER (8020)							
Benzene	ND	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	ND	5
Ethyl Benzene	ND	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	ND	5
% Surrogate Recovery:	116	106	110	119	98	106	

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, CA 90503. Tel. (213) 618-8889 Fax: (213) 618-0818

QUALITY CONTROL DATA

CLIENT: CDM
PROJECT: McDonnell Douglas
CONTROL NO: 910758

METHOD: EPA 8010/8020
MATRIX: Soil

SAMPLE ID: 910758-B4

COMPOUND	SAMPLE RESULTS (ug/kg)	AMOUNT SPIKED (ug/kg)	% REC.	DUP. % REC.	RPD
11-DCE	ND	50	104	108	4
Benzene	ND	50	112	112	0
TCE	ND	50	124	126	2
Toluene	ND	50	114	116	2
Chl. Benzene	ND	50	126	128	2

METHOD: EPA 3050/6010
MATRIX: Soil

SAMPLE ID: 910758-Comp. 1

COMPOUND	SAMPLE RESULTS (mg/kg)	AMOUNT SPIKED (mg/kg)	% REC.	DUP. % REC.	RPD
Zinc	68	100	84	87	2
Chromium	23	100	82	81	0
Copper	23	100	84	83	0

EPA METHOD 8080 - PESTICIDES & PCBs

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/26/91
SAMPLE ID:	MDT-B4	**DATE ANALYZED:**	07/29/91
CONTROL NO:	910758-Comp. 5	**MATRIX:**	Soil

PARAMETERS (8080)	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Aldrin	ND	0.02
Alpha-BHC	ND	0.01
Beta-BHC	ND	0.02
Delta-BHC	ND	0.02
Gamma-BHC (Lindane)	ND	0.01
Chlordane	ND	.05
4,4'-DDD	ND	.02
4,4'-DDE	ND	.02
4,4'-DDT	ND	.02
Dieldrin	ND	.02
Endosulfan I	ND	.02
Endosulfan II	ND	.05
Endosulfan Sulfate	ND	.05
Endrin	ND	.02
Endrin Aldehyde	ND	.05
Heptachlor	ND	.02
Heptachlor Epoxide	ND	.02
Methxychlor	ND	.1
Toxaphene	ND	.1
Aroclor - 1016	ND	.1
Aroclor - 1221	ND	.1
Aroclor - 1232	ND	.1
Aroclor - 1242	ND	.1
Aroclor - 1248	ND	.1
Aroclor - 1254	ND	.1
Aroclor - 1260	ND	.1

% Recovery:	
Dibutylchorendate	87
2,4,5,6-Tetrachloro-m-xylene	99

EPA METHOD 8080 - PESTICIDES & PCBs

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/26/91
SAMPLE ID:	Method Blank	**DATE ANALYZED:**	07/29/91
CONTROL NO:	910758	**MATRIX:**	Soil

PARAMETERS (8080)	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Aldrin	ND	0.02
Alpha-BHC	ND	0.01
Beta-BHC	ND	0.02
Delta-BHC	ND	0.02
Gamma-BHC (Lindane)	ND	0.01
Chlordane	ND	.05
4,4'-DDD	ND	.02
4,4'-DDE	ND	.02
4,4'-DDT	ND	.02
Dieldrin	ND	.02
Endosulfan I	ND	.02
Endosulfan II	ND	.05
Endosulfan Sulfate	ND	.05
Endrin	ND	.02
Endrin Aldehyde	ND	.05
Heptachlor	ND	.02
Heptachlor Epoxide	ND	.02
Methxychlor	ND	.1
Toxaphene	ND	.1
Aroclor - 1016	ND	.1
Aroclor - 1221	ND	.1
Aroclor - 1232	ND	.1
Aroclor - 1242	ND	.1
Aroclor - 1248	ND	.1
Aroclor - 1254	ND	.1
Aroclor - 1260	ND	.1

% Recovery:	
Dibutylchorendate	87
2,4,5,6-Tetrachloro-m-xylene	99

LIST OF COMPOSITE

COMPOSITE	SAMPLE ID	CKY CONTROL #
910758-Comp 1	MDT-B1-5'	910758-1
	MDT-B1-10'	910758-3
	MDT-B1-15'	910758-5
	MDT-B1-20'	910758-7
	MDT-B1-25'	910758-9
	MDT-B1-30'	910758-11
910758-Comp 2	MDT-B2-5'	910758-13
	MDT-B2-10'	910758-15
	MDT-B2-15'	910758-17
	MDT-B2-20'	910758-19
	MDT-B2-25'	910758-21
	MDT-B2-30'	910758-23
910758-Comp 3	MDT-B3-5'	910758-25
	MDT-B3-10'	910758-27
	MDT-B3-15'	910758-29
	MDT-B3-20'	910758-31
	MDT-B3-25'	910758-33
	MDT-B3-30'	910758-35
910758-Comp 6	MDT-B6-5'	910758-37
	MDT-B6-10'	910758-39
	MDT-B6-15'	910758-41
	MDT-B6-20'	910758-43
	MDT-B6-25'	910758-45
	MDT-B6-30'	910758-47
910758-Comp 4	MDT-B4-5'	910758-49
	MDT-B4-10'	910758-51
	MDT-B4-15'	910758-53
	MDT-B4-20'	910758-55
	MDT-B4-25'	910758-57
	MDT-B4-30'	910758-59

Enseco
A Corning Company

[ ] 2325 Skyway Dr., Unit K, Santa Maria, CA 93455, (805) 922-2776
[ ] 9537 Telstar Ave., Unit 118, El Monte, CA 91731, (818) 442-8400
[ ] Mobile Labs, (800) ENSECO 8

CHAIN OF CUSTODY RECORD

Date 7/18/91 Page 1 of 4

Lab Number

CLIENT CDM
ADDRESS 18881 VON KARMAN
Suite 650 Irvine, CA 92715
PROJECT NAME McDonnell Douglas Torrance
CONTRACT / PURCHASE ORDER / QUOTE #

PROJECT MANAGER S. Rowe
PHONE NUMBER 714 752-5452
SITE CONTACT E Weigand

ANALYSES: 13 priority pollutant metals* | 8010/8020 Volatiles | 8080 pest & PCB's

	Sample No. / Identification	Date	Time	Lab Sample Number	LIQ.	AIR	SOLID	No. of Containers	13 priority pollutant metals*	8010/8020 Volatiles	8080 pest & PCB's						Sample Condition/ REMARKS
1	MDT-B1-5'	7/18	759				X	1	C	C							1 3" S.S. Sleeve
2	MDT-B1-5.2'	↓	↓				↓	↓									↓
3	MDT-B1-10'	↓	805				↓	↓	C	C							↓
4	MDT-B1-10.2'	↓	↓				↓	↓									↓
5	MDT-B1-15'	↓	815				↓	↓	C	C							↓
6	MDT-B1-15.2'	↓	↓				↓	↓									↓
7	MDT-B1-20'	↓	825				↓	↓	C	C							↓
8	MDT-B1-20.2'	↓	↓				↓	↓									↓
9	MDT-B1-25'	↓	845				↓	↓	C	C							↓
10	MDT-B1-25.2'	↓	↓				↓	↓									↓

SAMPLERS: (Signature) E. Weigand
Received by: (Signature) KEVIN — Date 7/18/91 Time 7:30
Relinquished by: (Signature) X X X X
Received by: (Signature) X X X — Date — Time

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Enseco Terms and Conditions, unless a contract or purchase order has been executed and is cited above.

Relinquished by: (Signature) X X X — Date — Time
Received for Laboratory by: [signature]
RECEIVED Date 7/19 Time 8am
ACCEPTED Date Time

Method of Shipment:

Special Instructions:
* by 6010/7000 (IMPORTANT) Please Composite 6-5' Interval samples from each boring (5', 10', 15', 20', 25', 30') to make 1 composite. Save other 6 (5.2', 10.2', 15.2', 20.2', 25.2', 30.2')
for later possible analysis

SAMPLE DISPOSITION:
1. Storage time requested: ______ days
(Samples will be stored for 30 days without additional charges; thereafter storage charges will be billed at the published rates.)
2. Sample to be returned to client: Y N
(Enseco will dispose of unreturned samples at no extra charge. Disposal will be by incineration wherever possible; otherwise, as appropriate, according to legal requirements.)

ENS—1145

DISTRIBUTION: White with report, Yellow to Enseco, Pink to Courier, Gold to Sample Control

BOE-C6-0071991

CHAIN OF CUSTODY RECORD

C

Camp Dresser & McKee Inc. -/C, 58

CDM

PROJECT NAME McDonnell Douglas Briance

PROJECT NUMBER 2299-115-RT-AUD

Field Log Book Reference No. ______

	SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	EXTR ORG	VOA	PEST/PCB	TRACE METALS	13 priority pollutant metals	8010/8020	8080	NUMBER OF CONTAINERS	LOG BOOK PG NO.	REMARKS
11	MDT	B1	30' ✓	7/18	900	B1	Soil					C	C		1		3" SS Sleeve
12	MDT	B1	30.2'	↓	↓	↓	↓								↓		↓
13	MDT	B2	5' ✓		1040	B2						C	C				
14	↓	↓	5.2'		↓	↓											
15			10'		1050							C	C				
16			10.2		↓												
17			15		1055							C	C				
18			15.2		↓												
19			20		1107							C	C				
20			20.2		↓												
21			25		1125							C	C				
22			25.2		↓												
23			30 ✓		1140							C	C				
24	↓	↓	30.2		↓	↓											
25	MDT	B3	5		1325	B3						C	C				
26	↓	↓	5.2		↓												
27			10	↓	1337		↓					C	C		↓		↓

SAMPLED BY (SIGN) E. Weyand

NOTE: Please follow compositing directions on p. 1 & ~~Met~~ Analyses

RELINQUISHED BY (SIGN) ① Emily Weyand DATE/TIME (7/8 / 7:35)	RELINQUISHED BY (SIGN) ② X X X DATE/TIME (/)	RELINQUISHED BY (SIGN) X X DATE/TIME (/)	RELINQUISHED BY (SIGN) ④ X X DATE/TIME (/)	RELINQUISHED BY (SIGN) ⑤ X X DATE/TIME (/)
RECEIVED BY (SIGN) ① Kevin DATE/TIME (7/18 / 7:35)	RECEIVED BY (SIGN) ② X X X DATE/TIME (/)	RECEIVED BY (SIGN) ③ X X DATE/TIME (/)	RECEIVED BY (SIGN) ④ X X DATE/TIME (/)	RECEIVED BY (SIGN) ⑤ X X DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
		Edwyn Merton	(7/19 , 8am)

LEGEND: Original: Return to Sample Traffic Control Center Copies: Ship with Samples

BOE-C6-0071992

CHAIN OF CUSTODY RECORD

C

Camp Dresser & McKee Inc. 410158 **CDM**

PROJECT NAME McDonnell Douglas Torrance

PROJECT NUMBER 2299-115-RT AUDT

Field Log Book Reference No. ____

	SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	ANALYSES: EXTR. ORG.	VOA	PEST./PCB	TRACE METALS	13 Priority metals	8010/8020	8080	NUMBER OF CONTAINERS	LOG BOOK PG. NO	REMARKS
28	MDT	B3	10.2	7/18/91	1337	B3	Soil					[illegible]	(circled)		1		2.5x3' SS Sleeve
29			15		1345							C	C				
30			15.2		↓												
31			20		1352							C	C				
32			20.2		↓												
33			25		1400							C	C				
34			25.2		↓												
35			30		1415							C	C				
36			30.2		↓												
37		B6	5		1600	B6						C	C				
38			5.2		↓												
39			10		1645							C	C				
40			10.2		↓												
41			15		1650							C	C				
42			15.2		↓												
43			20		1700							C	C				
44			20.2		↓												

LEGEND: Original: Return to Sample Traffic Control Center Copies: Ship with Samples

SAMPLED BY (SIGN) E. Weyand

NOTE: Please follow compositing directions on Pal & Analyses

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① Emily Weyand DATE/TIME (7/18 / 7:35)	② X X DATE/TIME (/)	X X X DATE/TIME (/)	④ X X DATE/TIME (/)	⑤ X DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
① Kevin DATE/TIME (7/18 7:35)	② X X DATE/TIME (/)	③ X X X DATE/TIME (/)	④ X DATE/TIME (/)	⑤ X DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
		[signature]	(7/19, 8am)

BOE-C6-0071993

910750

CHAIN OF CUSTODY RECORD C

Camp Dresser & McKee Inc. **CDM**

PROJECT NAME McDonnell Douglas Torrance

PROJECT NUMBER 2279-115-RT AUDT

Field Log Book Reference No. ______

SAMPLE NUMBER			DATE	TIME	SAMPLE LOCATION	SAMPLE TYPE	EXTR. ORG.	VOA	PEST./PCB	TRACE METALS	13 Priority metals	8010/8020	8080	NUMBER OF CONTAINERS	LOG BOOK PG NO	REMARKS
MDT	B6	25	7/18/91	1713	B6	SOIL				C	C			1		2.5×3" SS Sleeve
		25.2														
		30		1725						C	C					
		30.2														
	B4	5		1815	B4					C	C	C				
		5.2														
		10		1821						C	C	C				
		10.2														
		15		1830						C	C	C				
		15.2														
		20		1840						C	C	C				
		20.2														
		25		1847						C	C	C				
		25.2														
		30		1855						C	C	C				
		30.2														
	B6	5			B4					C	C	C				

Left margin: 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

SAMPLED BY (SIGN) E. Wiegand

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
① Emily L. Wiegand DATE/TIME (7/18 / 7:35)	② DATE/TIME (/)	③ DATE/TIME (/)	④ DATE/TIME (/)	⑤ DATE/TIME (/)
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
① KEVIN DATE/TIME (7/18 / 7:35)	② DATE/TIME (/)	③ DATE/TIME (/)	④ DATE/TIME (/)	⑤ DATE/TIME (/)

METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY BY (SIGN)	DATE/TIME
		[signature]	(7/19 / 8am)

LEGEND: Original: Return to Sample Traffic Control Center Copies: Ship with Samples

BOE-C6-0071994

AUG 0 7 1991

C K Y incorporated
Analytical Laboratories

Date: 08/01/91
910759

CDM
18881 Von Karman, Ste. 650
Irvine CA 92715

Attn: Ms. Suzanne Rowe

Subject: Laboratory Report
Project: McDonnel Douglas-Torrance

Enclosed is the laboratory report for samples received on 07/19/91. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported includes:

Method	No. of Analysis
EPA 8010/8020	1 Soil Composite
EPA 8080	1 Soil Composite
EPA 6010	1 Soil Composite

The results are summarized on six pages.

Please feel free to call if you have any questions concerning these results.

Sincerely,

Dr. Kam Pang
Laboratory Director

630 Maple Ave., Torrance, Calif. 90503 • Telephone 213-618-8889 • Fax: 213-618-0818

EPA METHODS - 8010/8020

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	N/A
SAMPLE ID:	MDT-B5-5',10',15',20',25',30'	**DATE ANALYZED:**	07/22/91
CONTROL NO:	910759-1,3,5,7,9,11	**MATRIX TYPE:**	Soil

PARAMETERS (8010)	RESULTS (ug/kg)	DETECTION LIMIT (ug/kg)
Dichlorodifluoromethane	ND	20
Chloromethane	ND	20
Vinyl Chloride	ND	20
Bromomethane	ND	20
Chloroethane	ND	20
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Methylene Chloride	ND	5
Trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon Tetrachloride	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Bromodichloromethane	ND	5
2-Chloroethylvinylether	ND	5
Trans-1,3-Dichloropropene	ND	5
Cis-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Dibromochloromethane	ND	5
Ethylene Dibromide	ND	5
Chlorobenzene	ND	5
Bromoform	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorotoluene	ND	5
M-Dichlorobenzene	ND	5
P-Dichlorobenzene	ND	5
Benzylchloride	ND	5
O-Dichlorobenzene	ND	5
PARAMETERS (8020)		
Benzene	ND	5
Toluene	ND	5
Ethylbenzene	ND	5
Xylenes	ND	5
% Surrogate Recovery:	110	

EPA METHODS - 8010/8020

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	N/A
SAMPLE ID:	Method Blank	**DATE ANALYZED:**	07/22/91
CONTROL NO:	910759	**MATRIX TYPE:**	Soil

PARAMETERS (8010)	RESULTS (ug/kg)	DETECTION LIMIT (ug/kg)
Dichlorodifluoromethane	ND	20
Chloromethane	ND	20
Vinyl Chloride	ND	20
Bromomethane	ND	20
Chloroethane	ND	20
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Methylene Chloride	ND	5
Trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon Tetrachloride	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Bromodichloromethane	ND	5
2-Chloroethylvinylether	ND	5
Trans-1,3-Dichloropropene	ND	5
Cis-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Dibromochloromethane	ND	5
Ethylene Dibromide	ND	5
Chlorobenzene	ND	5
Bromoform	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorotoluene	ND	5
M-Dichlorobenzene	ND	5
P-Dichlorobenzene	ND	5
Benzylchloride	ND	5
O-Dichlorobenzene	ND	5
PARAMETERS (8020)		
Benzene	ND	5
Toluene	ND	5
Ethylbenzene	ND	5
Xylenes	ND	5
% Surrogate Recovery:	116	

EPA METHOD 8080 - PESTICIDES & PCBs

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/26/91
SAMPLE ID:	MDT-B5-5',10',15',20',25',30'	**DATE ANALYZED:**	07/29/91
CONTROL NO:	910759-1,3,5,7,9,11	**MATRIX:**	Soil

PARAMETERS (8080)	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Aldrin	ND	0.02
Alpha-BHC	ND	0.01
Beta-BHC	ND	0.02
Delta-BHC	ND	0.02
Gamma-BHC (Lindane)	ND	0.01
Chlordane	ND	.05
4,4'-DDD	ND	.02
4,4'-DDE	ND	.02
4,4'-DDT	ND	.02
Dieldrin	ND	.02
Endosulfan I	ND	.02
Endosulfan II	ND	.05
Endosulfan Sulfate	ND	.05
Endrin	ND	.02
Endrin Aldehyde	ND	.05
Heptachlor	ND	.02
Heptachlor Epoxide	ND	.02
Methxychlor	ND	.1
Toxaphene	ND	.1
Aroclor - 1016	ND	.1
Aroclor - 1221	ND	.1
Aroclor - 1232	ND	.1
Aroclor - 1242	ND	.1
Aroclor - 1248	ND	.1
Aroclor - 1254	ND	.1
Aroclor - 1260	ND	.1

% Recovery:

Dibutylchorendate	98
2,4,5,6-Tetrachloro-m-xylene	115

EPA METHOD 8080 - PESTICIDES & PCBs

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/26/91
SAMPLE ID:	Method Blank	**DATE ANALYZED:**	07/29/91
CONTROL NO:	910759	**MATRIX:**	Soil

PARAMETERS (8080)	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Aldrin	ND	0.02
Alpha-BHC	ND	0.01
Beta-BHC	ND	0.02
Delta-BHC	ND	0.02
Gamma-BHC (Lindane)	ND	0.01
Chlordane	ND	.05
4,4'-DDD	ND	.02
4,4'-DDE	ND	.02
4,4'-DDT	ND	.02
Dieldrin	ND	.02
Endosulfan I	ND	.02
Endosulfan II	ND	.05
Endosulfan Sulfate	ND	.05
Endrin	ND	.02
Endrin Aldehyde	ND	.05
Heptachlor	ND	.02
Heptachlor Epoxide	ND	.02
Methxychlor	ND	.1
Toxaphene	ND	.1
Aroclor - 1016	ND	.1
Aroclor - 1221	ND	.1
Aroclor - 1232	ND	.1
Aroclor - 1242	ND	.1
Aroclor - 1248	ND	.1
Aroclor - 1254	ND	.1
Aroclor - 1260	ND	.1

% Recovery:

Dibutylchorendate	87
2,4,5,6-Tetrachloro-m-xylene	99

EPA 3050/6010/7000
CAM METALS BY ICP/AAS

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/24/91
SAMPLE ID:	MDT-B5-5',10',15',20',25',30'	**DATE ANALYZED:**	07/26/91
CONTROL NO:	910759-1,3,5,7,9,11	**MATRIX:**	Soil

PARAMETERS	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Antimony	ND	5.0
Arsenic	ND	5.0
Beryllium	ND	0.50
Cadmium	1.6	0.50
Chromium - Total	13	0.50
Copper	11	0.50
Lead	ND	1.0
Mercury	ND	0.002
Nickel	9.4	1.0
Selenium	ND	5.0
Silver	ND	0.50
Thallium	ND	10
Zinc	40	0.50

QUALITY CONTROL DATA

CLIENT: CDM
PROJECT: McDonnel Douglas
CONTROL NO: 910759

METHOD EPA 3050/6010
MATRIX: Soil

SAMPLE ID: 910758-Comp. 1

COMPOUND	SAMPLE RESULTS (mg/kg)	AMOUNT SPIKED (mg/kg)	% REC.	DUP. % REC.	RPD
Zinc	68	100	84	87	2
Chromium	23	100	82	81	0
Copper	23	100	84	83	0

METHOD EPA 8010/8020
MATRIX: Soil

SAMPLE ID: 910758-Comp. 5

COMPOUND	SAMPLE RESULTS (ug/kg)	AMOUNT SPIKED (ug/kg)	% REC.	DUP. % REC.	RPD
1,1 DCE	ND	50	104	108	4
Benzene	ND	50	112	112	0
TCE	ND	50	124	126	2
Toluene	ND	50	114	116	2
Chl. Benzene	ND	50	126	128	2

A1 -11C7.9

CHAIN OF CUSTODY RECORD
REQUEST FOR ANALYSIS

CLIENT NAME: CDM
ADDRESS: 18881 VON KARMAN, STE 650
IRVINE, CA 92715
PHONE NO. 714 752-5452 FAX NO. 714-752-1307
PROJECT NAME: McDonnell Douglas - Torrance
SEND REPORT TO: Suzanne Lowe

DATE: 7/19/91
PAGE 1 OF 1

CKY incorporated
Analytical Laboratories
630 Maple Ave.
Torrance, Calif. 90503
Tel: 213-618-8889
Fax: 213-618-0818

SAMPLER NAME/SIGNATURE: Emily J. Okayama

TURN AROUND TIME: NORMAL [X] RUSH [ ]

	SAMPLE NUMBER	SAMPLING DATE/TIME		PRESERVATIVE	CONTAINER SIZE/TYPE	SAMPLE DESCRIPTION: WATER	SOIL	OTHER	ANALYSES REQUIRED: 418.1	M8015	8010/601 (VOA's)	8020/602	8080/608 - PCB's, Pesticides	8240/624	8270/625	CAM Metals	13 Priority Pollutant Metals
1	MDT-B5-5	7/19	910	N/A	2.5x3" sleeve		X				C	C	C				C
2	MDT-B5-5.2		↓														
3	MDT-B5-10		915								C	C	C				C
4	MDT-B5-10.2		↓														
5	MDT-B5-15		925								C	C	C				C
6	MDT-B5-15.2		↓														
7	MDT-B5-20		930								C	C	C				C
8	MDT-B5-20.2		↓														
9	MDT-B5-25		935								C	C	C				C
10	MDT-B5-25.2		↓														
11	MDT-B5-30		945								C	C	C				C
12	MDT-B5-30.2		↓														

COMMENTS: Please composite all 5' intervals for 1 composite sample for the analyses requested. Please save 5.2' intervals for later analyses

Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
Emily J. Okayama	9/19/91		7/19				
Company: CDM	Time: 10:30	Company: CKY	Time: 10:30	Company:	Time:	Company:	Time:

Storage/Disposal of Samples: Sample will be stored at CKY for 30 days at no charge and at $10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at $10/sample.

BOE-C6-0072002

EPA 3050/6010/7000
PRIOR. POLL METALS BY ICP/AA

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/24/91
SAMPLE ID:	MDT-B2	**DATE ANALYZED:**	07/26/91
CONTROL NO:	910758-Comp. 2	**MATRIX:**	Soil

PARAMETERS	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Antimony	ND	5.0
Arsenic	11	5.0
Beryllium	ND	0.50
Cadmium	2.2	0.50
Chromium - Total	18	0.50
Copper	18	0.50
Lead	ND	1.0
Mercury	ND	0.05
Nickel	12	1.0
Selenium	ND	5.0
Silver	ND	0.50
Thallium	ND	10
Zinc	59	0.50

EPA 3050/6010/7000
PRIOR. POLL METALS BY ICP/AA

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/24/91
SAMPLE ID:	MDT-B3	**DATE ANALYZED:**	07/26/91
CONTROL NO:	910758-Comp. 3	**MATRIX:**	Soil

PARAMETERS	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Antimony	ND	5.0
Arsenic	13	5.0
Beryllium	ND	0.50
Cadmium	2.4	0.50
Chromium - Total	19	0.50
Copper	19	0.50
Lead	ND	1.0
Mercury	ND	0.05
Nickel	10	1.0
Selenium	ND	5.0
Silver	ND	0.50
Thallium	ND	10
Zinc	62	0.50

EPA 3050/6010/7000
PRIOR. POLL METALS BY ICP/AA

CLIENT:	CDM	**DATE REC'D:**	07/19/91
PROJECT:	McDonnel Douglas	**DATE EXTRACTED:**	07/24/91
SAMPLE ID:	MDT-B6	**DATE ANALYZED:**	07/26/91
CONTROL NO:	910758-Comp. 4	**MATRIX:**	Soil

PARAMETERS	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Antimony	ND	5.0
Arsenic	7.8	5.0
Beryllium	ND	0.50
Cadmium	1.9	0.50
Chromium - Total	14	0.50
Copper	11	0.50
Lead	ND	1.0
Mercury	ND	0.05
Nickel	8.5	1.0
Selenium	ND	5.0
Silver	ND	0.50
Thallium	ND	10
Zinc	44	0.50